

Building Cyberinfrastructure Capacity for the Social Sciences



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The Challenges faced by SBE

- Globalization, migration
- Social media and Big Data
- Declining response rates to national surveys
- Rapid social and environmental changes
- Rapid shifts in the economy
- Training the next generation



Data for People and Places

- There is increased interest in linking different types of data, particularly to situate people in place.
- Individual data with great detail or granularity.
- Use of data come from a variety of sources – administrative, local land use, census, social media.
- There is a need to collaborate across disciplines.
- We need tools to design better policy instruments that address human variability at the local level



Antecedents

- A cyberinfrastructure workshop in 2009 recommended that NSF consider creating some 20 or 25 centers spread around the country to become regional data cyberinfrastructure facilities or observatories
- This laid the foundation for our effort to begin to sketch what such regional data centers might look like and what they might do



Suggested Models

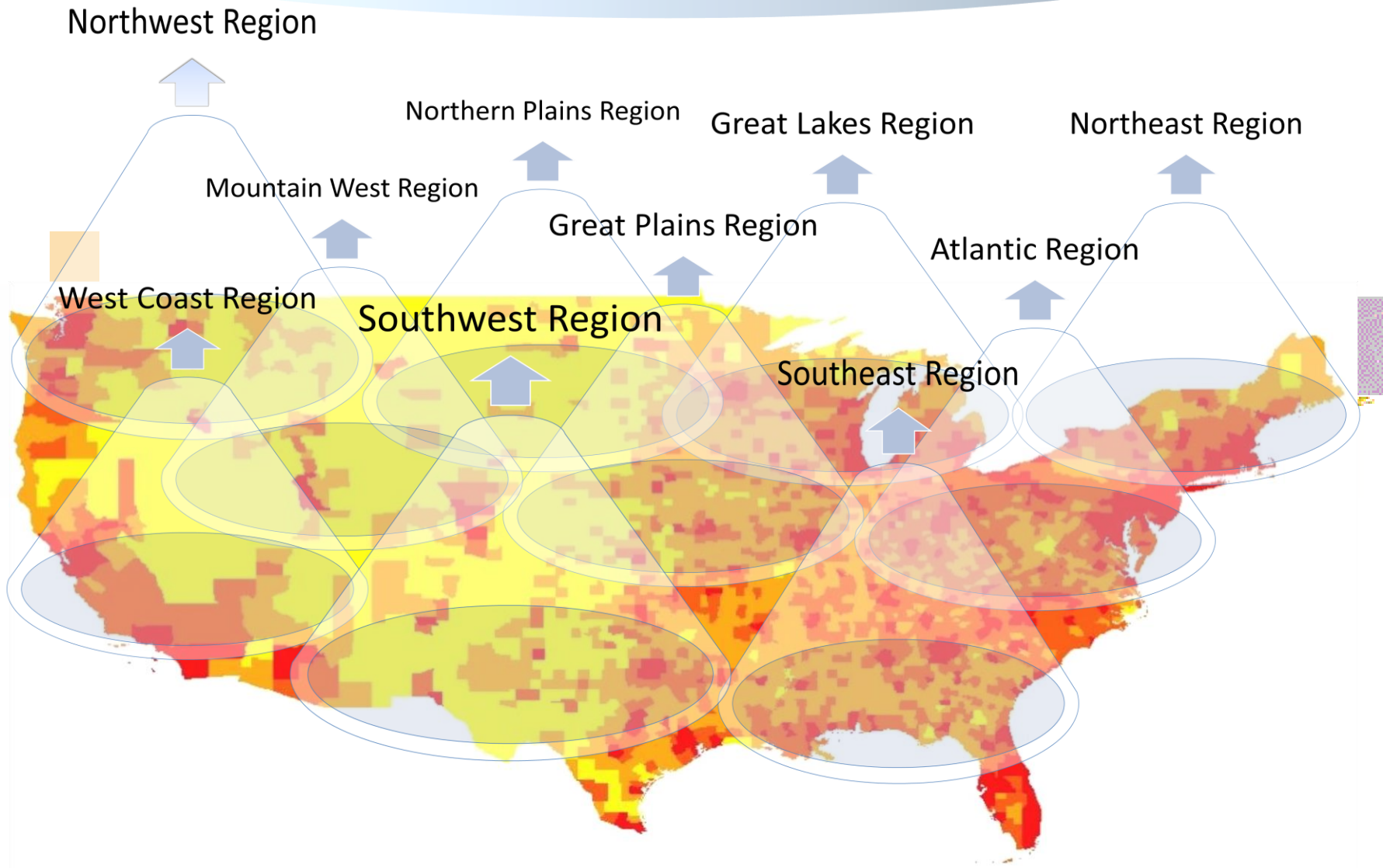
- National Center
- National Network of Regional Centers



National Network of Regional Centers

- It is already happening informally across the nation but in an uncoordinated fashion e.g. Chicago, Portland
- An alternative to the national longitudinal surveys that have driven a lot of SBE, currently facing declining response rates
- This complements those surveys, but more place-based and more fine-grained data addressing local to regional concerns but with aggregative capacity
- Exploit administrative data currently not used, and making those data available to scientists
- <http://socialobservatories.org>

National Coordinating Center





■ **WHITE PAPER**
October 2015

■ **A NATIONAL CENTER FOR HUMAN SYSTEMS SCIENCE**
ADVANCING NEXT GENERATION SOCIAL INFORMATICS AND
ANALYTICS

Michael Barton et al.



Why a national center?

- a national center or network of centers could rise above the structure of guilds and address questions of national importance (sort of like the National Academy serves the nation by addressing questions posed to it by the government agencies) with the best science and scientists.
- It could have a core of people permanently but be able to draw from scientists across the country or organize activities and research to make sure that within a reasonable amount of time can get results that are robust and promptly disseminated to the public.
- A place to go to by the public and government when they need fast responses to social questions, a clearinghouse



Coordination

- Coordination of dispersed knowledge and overlapping efforts between research institutions, government private sectors: Develop efforts to link existing thematic/regional efforts and needs for data collection and assessments in collaboration with and in contribution to regional and national agencies (ex. US Census Bureau, USDA, CDC, DoE, USGS, etc., etc., etc.); this also has implication for funding.



Social Analytics

- **One mechanism for enhancing a community of data, methods, and concepts is through the development and establishment of a national center for advanced social analytics.**



A national coordination center could serve as

- as a clearinghouse and resource for consistency, representation, and statistical validity in data collection, curation, and dissemination across the regional centers.
- A clearinghouse for confidential data agreements and contracts and development of protocols that would be needed to disseminate the data to researchers to maintain privacy and confidentiality.
- This is a key function that would be well-served at the national level because it would increase efficiency by reducing duplication of effort.



Branding and Policy Relevance

- A national social science center could potentially work at building up a brand identity for the social sciences as a whole
- If executed carefully, such a strategy could help channel policy-relevant social science to decision makers far more effectively than the current model.
- Where do people go now to get the state of the art on what social science has to offer on important social issues? ISR? The Kennedy School?



Goal: Increasing Capacity to address grand challenges

- Questions of national import e.g. the declining middle class, conservation and production, understanding catastrophic risk, innovative society, tipping points
- Able to handle Big Data. Computational capacity
- Stronger Relations to Natural Sciences. The questions are no longer one or the other
- Greater Inter-social science capacity. The public recognizes the social sciences more than specific disciplines but we rarely have the breadth to speak as the social and behavioral sciences



A National Need

- A national center or a network of regional centers is clearly the way to build capacity in SBE, through training, synthesis, and cyberinfrastructure capacity building and delivering research and policy recommendations solidly based on SBE work.
- Such a national center or centers should have the capacity to process Big Data, or serve as a data clearinghouse; as a training center to do what departments are not now able to do in this regard; as a synthesis center (s) after the model in the biological sciences; and address big questions of national importance bringing to bear the best people and the best science to urgent questions



A National Center would

- concentrate on public goods, economies of scale, and brand-building. These are related and in some cases overlap.
- Public goods: negotiate data sharing arrangements with large scale data holders, such as search engines, cellphone companies, retailers, agribusiness firms, insurance companies, etc, and create data access arrangements
- create tools to create custom sampling frames that could be deployed in new research projects in a manner that optimized interoperability with other research and data collection efforts.



What do we gain from this new platform?

- A national framework for studying local contexts for social dynamics
- A national SBE cyberinfrastructure to serve 21st century society
- A national framework for interdisciplinary collaboration and training



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- National Center idea

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- National Network of Regional Centers

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Thank you

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URL

- <http://socialobservatories.org>